

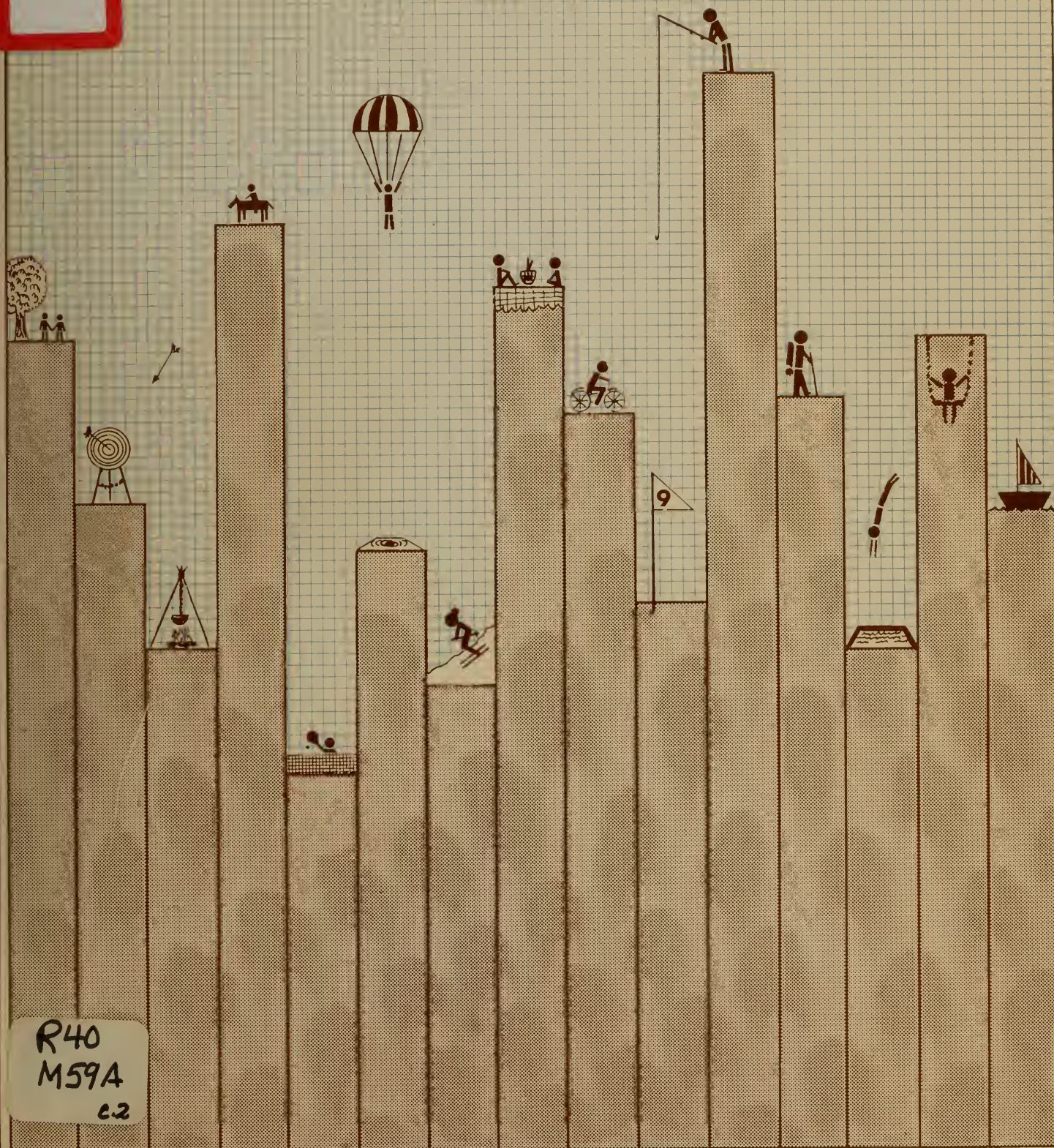
ASSESSING RECREATION DEMAND

PREPARED BY: METROPOLITAN AREA PLANNING COUNCIL

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ABOUT THIS REPORT

Assessing Recreation Demand was prepared by the staff of the Metropolitan Area Planning Council under the supervision of the Executive Director. The Metropolitan Area Planning Council is the officially designated regional planning agency for 101 cities and towns in the Boston metropolitan area. The Council assists its member communities in land use planning, environmental quality, housing and economic development.

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TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION	1
RECREATION SUPPLY: INVENTORIES	2
RECREATION DEMAND: ANALYSES	11
METHODS FOR ASSESSING RECREATION DEMAND	12
I. POLITICAL PROCESSES	12
II. RECREATION STANDARDS	14
III. PARTICIPATION RATES	21
IV. SURVEY METHOD	32
A. SURVEY DESIGN	33
B. SAMPLE SELECTION	36
C. SURVEY ADMINISTRATION	39
D. SAMPLE SURVEY	41
E. ANALYSIS OF DATA	46
RECREATION NEEDS: ANALYSES	49
RECREATION NEEDS ANALYSES: APPLICATION	51
APPENDIX	52

INTRODUCTION

In accordance with guidelines outlined by the Massachusetts Department of Conservation Services, all communities seeking funding for the acquisition and development of public open space and recreation areas must file comprehensive open space and recreation plans.

Compliance with funding criteria requires that these plans relate their recommendations to accurate analyses of community demand and need for open space and recreation.

Recreation needs and demands analyses are perhaps the most confusing of all components comprising a comprehensive plan for recreation. Because the state is now placing increased emphasis on these analyses the MAPC has compiled this manual, which describes in detail several methodologies communities may follow to complete an accurate assessment of community demand and need for open space and recreation.

RECREATION SUPPLY: INVENTORIES

Any study of community demand and need for open space and recreation is contingent upon the supply of existing resources. The first step in the preparation of needs analyses consists of compiling a detailed inventory of all existing open space and recreation facilities. To the extent possible, such an inventory should include both those publicly and privately owned. An inventory of this type, if properly organized and researched, can provide important indications of community recreation participation and ultimately the adequacy of existing recreation resources.

The factors which should be detailed in this inventory fall into two basic categories: those describing the physical characteristics of each site, and those that directly or indirectly affect recreation usage. What follows is a listing of those factors. Time and money may prohibit the research involved in collecting all the information listed below. At the very least, it is essential to list the physical characteristics of each recreation site, and every attempt should be made to gain some understanding of each site's usage.

I. Physical Characteristics of Each Recreation Site

- Location
- Acreage
- Ownership
- Agency Responsible for Management
- Significant Natural Features
 - Rare Vegetation or Wildlife
 - Rock Outcrops
 - Hills
 - Forested Areas
 - Water Resources
 - Wetland
- Significant Man-made Features
 - Playing Fields
 - Tot Lots
 - Club Houses
 - Swimming Pools
 - Skating Rinks
 - Tennis or Basketball Courts
 - Hiking or Nature Trails
 - Etc.
- Condition of Facilities

II. Factors Affecting Usage for Each Recreation Site

- Activities Supported
- Programs Offered (Park and Recreation Dept., Schools, Private)
- Capacity of Facilities and Programs
- Times Used (Day-Night)
- Periods of Intensive Use
- Proximity to Similar Facilities
- Type and Availability of Transportation

Demographics of Users
% of Time Over-crowded or Under-utilized
User Fees
Condition of Facilities

The organization and presentation of this information will affect its use for further study. There are several formats which can be used successfully. Most consist of a combination of mapping, verbal description and tabular listing of characteristics. To further facilitate the use of this information, it is often wise to record supply data in terms of neighborhood designations such as planning districts or census tracts. Not only does this have implications with regard to the accessibility of various recreation facilities, it provides a medium through which demographic information about potential recreation users may be easily obtained. Several examples of organizational format have been included here.

PLANNING DISTRICT OR CENSUS TRACT

SITE NAME
&/or
LOCATION

The Site's name and location within its district is important in terms of determining the probable market area for the site. This information should be augmented through the use of maps.

Additional characteristics may be of use to the planning process, other than those listed here. They might include zoning status, type of surrounding land uses (residential, commercial, industrial), etc.

Cataloging of existing facilities and activities supported by each recreation area is essential to the success of the inventory. Listed here are many alternative activities some may apply, some may not. Each community must determine for itself what activities should be listed in a matrix of this type. One means of recording information in this area is simply to check those that apply. It may be of more use to indicate numbers where it makes sense (4-Tennis Courts, 4 mi.-Bicycle Paths).

- DESCRIPTIVE INFORMATION
- ACREAGE
- OWNERSHIP
- AGENCY MANAGEMENT
- TYPE OF LAND
- FACILITIES
- BASKETBALL-SOFTBALL
- BASKETBALL
- FOOTBALL
- RACQUET SPORTS
- FIELD HOUSES
- SWIMMING
- SWIMMING (POOL)
- SWIMMING (NON-POOL)
- TOT LOTS
- PLAYGROUNDS
- FREE PLAY AREAS
- BICYCLE PATHS
- HIKING TRAILS
- NATURE TRAILS
- TRACKS
- CAMPING (RUNNING)
- CAMPING AREAS (SITES)
- PICNIC TABLES
- BOATING & CANOEING
- HORSEBACK RIDING
- GOLF COURSES
- EXERCISE COURSES
- ARCHERY COURSES
- FISHING-SHOOTING
- FISHING
- HUNTING
- SKIING
- SKIING (DOWN-HILL)
- SKIING (X-COUNTRY)
- SKATING RINKS
- TOBOGGANING
- COMMENTS (Pg. No.)

A reference as to where to find additional comments could be shown here. Those comments should include information regarding natural characteristics of the site, condition & perceptions of use.

Inventory of Open Lands

Table I

PARCEL DESCRIPTION AND NUMBER	PARCEL SIZE	FORM OF OWNERSHIP	CURRENT ZONING	AGENCY RESPONSIBLE FOR MGT.	SPECIAL LEGAL RESTR./REGS.	QUALITY OF FACILITIES	SEASONAL USE	# OF PARTICIPANTS	PARTICIPANT GEOG. DISTRIB.
44 Phillips School grounds	1.44A	Town	SR 10,000 ft ²	Wellesley BPU, School Comm.	Parkland, School Grounds Water Supply	Playground-fair	All year	100	School district
45 Hunnewell Field & Senior High School grounds	49.13A	Town	SR 10,000 ft ²	"	Largely Parkland, School grounds	Baseball-poor Football-fair Track-exc. Tennis-good/exc. Soccer-exc. Softball-good/exc	Spring/summer Fall All year All year 9 mos. Spring/summer	500 100 200 2000 200 500	Wellesley " " " " "
46 Anne F. Warren School grounds	4.02A	Town	SR 10,000 ft ²	Wellesley School Committee	School Grounds	Playground-poor Softball-poor	--- Little use	75	Neighborhood
47 John D. Hardy School grounds	6.11A	Town	SR 10,000 ft ²	"	"	Softball-poor Playground-fair Has open field which could be bisected by paved walk.	Spring/summer All year used for sports, presently	50 50	Neighborhood School district
48 Isaac Sprague School grounds & Jr. High School fields	27.74 A	Town	SR 10,000 ft ²	Wellesley Board of Selectmen, School Comm.	"	Soccer-fair/exc Baseball-fair Softball-fair Football-fair Playground-fair	9 mos. Spring/summer " Fall All year	1000 100 100 50 50	Wellesley " Jr. High " School district
49 Ernest Upham School grounds	11.96A	Town	SR 10,000 ft ²	"	"	Softball-fair	Spring/summer	50	Neighborhood
50 Katherine Lee Bates School & Kelly Memorial Park	29.1 A	Town	SR 20,000 ft ² & WPD	Wellesley School Comm., BPU	School Grounds, Parkland	Softball-fair Soccer-fair Skating-good/w weather Tennis-exc. Playground-good	Spring/summer 9 mos Winter All year All year	500 1000 500-1000 500 150	Wellesley " " " Bates & Upham School dists.

TABLE 2. INVENTORY OF WELLESLEY SPORTS FACILITIES

SPORT/ACTIVITY	NUMBER OF COURTS, FIELDS, ETC.	
	Public	Private
Baseball	4	
Softball	12	
Track and Field	1	
Soccer	14	
Football	2 Regulation 2 Small	
Tennis	13	42 (various)
Paddle Tennis		3 (Wellesley Paddle Tennis Association)
Skating-Artificial Rink		1 (Babson Recreation Center)
-Pond or Other	5	
Swimming Facility	1 (Morse's Pond)	
Swimming Pool		2 (Wellesley College, Babson Rec. Ctr.)
Playgrounds	13	
Basketball	1	
Golf	1 (Weston)	2 (Nehoiden and Welles- ley Country Club)
Squash Courts		2 (Wellesley College) 2 (Maugus Club)
Badminton Courts		2 (Maugus Club)
Bowling		6 Lanes (Maugus Club)

Some facilities have multiple uses.

Public Open Space

Site	Ownership	Acres	Uses
Schools (Recreation areas)	School Department	47.0	tennis, swimming, active sports, play apparatus
Common	Board of Selectmen	2.3	benches, flower open aesthetic area
Town Park	Water Commission	52.3	softball field sliding, natural wooded area, wetlands
Lottery Park	Board of Selectmen	6.5	ballfield, pond open area
Town Forest	Board of Selectmen	153.0	natural wooded area, undeveloped
Town Beaches	Recreation Commission	3.5	swimming
Silver Lake	Commonwealth of Mass	28.0	swimming, boat fishing
Elmwood Village Acres	Conservation Commission	13.6	natural areas
Pathway Acres	Conservation Commission	20.5	natural areas
Hubbers Brook Acres	Conservation Commission	26.2	natural areas
South Wilmington Acres	Conservation Commission	53.0	natural areas
Wildwood St. Conservation Area	Conservation Commission	34.0	natural areas
Olderwood Estates Conservation Area	Conservation Commission	23.0	natural areas
Orum Meadows Conservation Acres	Conservation Commission	13.0	natural areas

6-2. INVENTORY: CONSERVATION, RECREATION AND FARM LAND

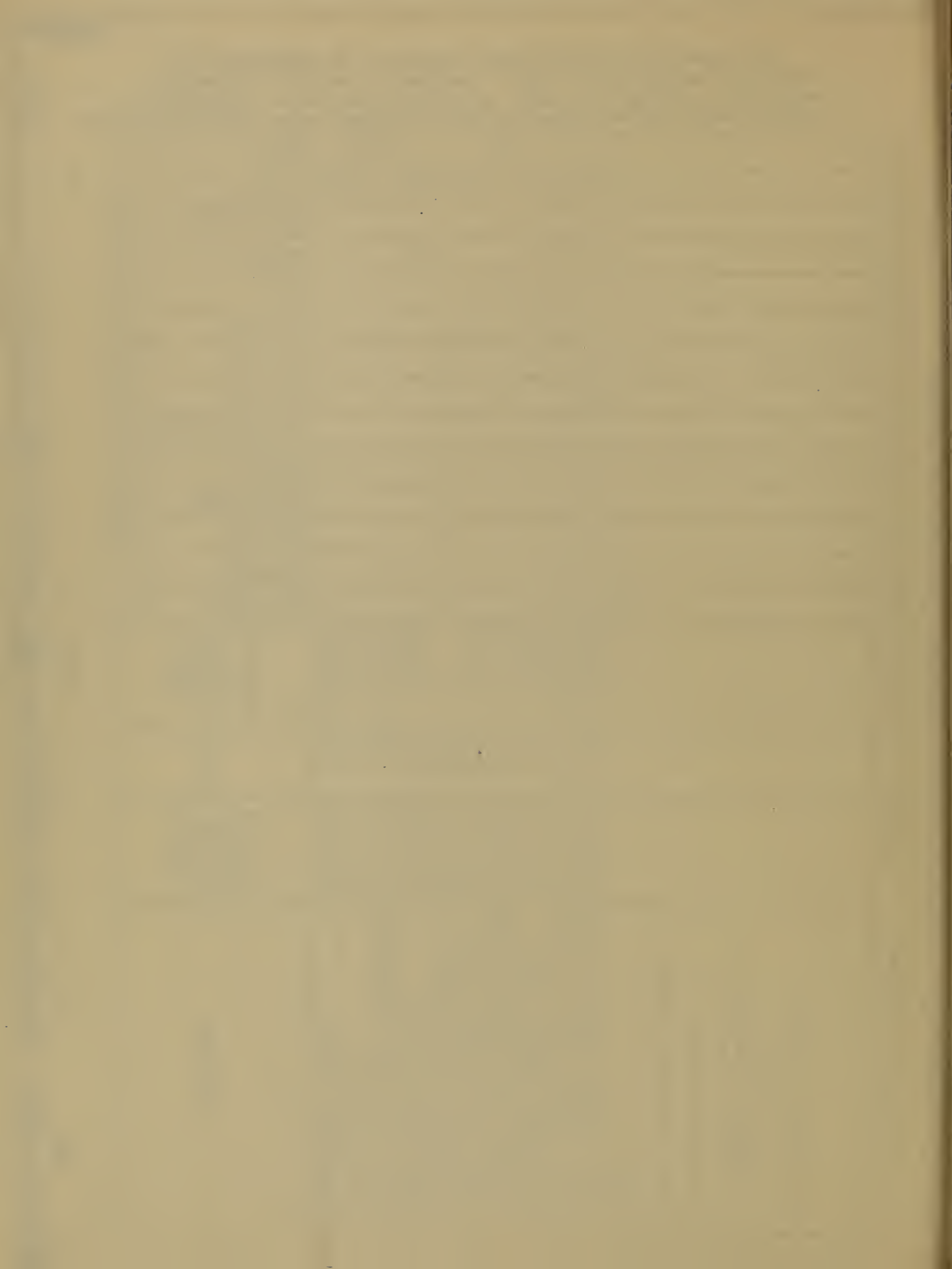
No.	Site Name	Size in Acres	Zoned	Special Restriction	Management	Area Covered	Owner	Winter Sports					Water Sports			Ball Sports								Passive Recreation					Firing Range	Site Condition			
								Ice Skating	Skiing	Cross-Country	Skiing	Snowmobiling	Snow Shoeing	Swimming	Boating	Fishing	Softball	Baseball	Little League	Baseball	Soccer	Basketball	Tennis	Golf	Picnicking	Hiking	Nature Trails	Horse Trails	Camping	Muni-Biking			
30	Old Fisher School Grounds	2.4	RA		T	NV	T										X					X										P	
31	New Fisher School Grounds	20	RA		T	NV	T										X				X	X										G	
32	Norfolk County Agric. School	150	RA		C	G	C																										
33	Bird School Grounds	8.7	B		T		T											X			X											G	
34	Town Forest	365	FP		T		T		X																X	X	X	X	X				E
35	Norfolk County Farm	202	R		C		C																										
36	Francis William Bird Park	89	CR		PR	C	PR							X			X				X		X			X	X	X					
37	Bird Athletic Field	7	B		T		PR										X																G

FACILITY	MAP LOCATION AND/OR PARCEL NUMBERS	ACRES	EST. ANNUAL NUMBER OF VISITORS	AVAILABLE RECREATION ACTIVITIES														
				SWIMMING	CAMPING	BOATING	PICNICKING	HIKING	X-CNTRY SKIING	SKATING	FISHING	HUNTING	GOLF	TENNIS	HORSERIDING	OTHER	OTHER	
Cochituate Field	51/45/45	4.6	**18,000														cP	OTHER
Riverview Field	36/68/70	6±	**2,000														cP	OTHER
Hannah Williams Playground	51/60/84	0.8	**6,000															dp
High School Parcel	37/90/50	77.5	***630												P		cP	
Pine/Mill Brooks Parcel	28/80/10	35±	?														cP	
Junior High School Parcel	47/85/90	30.8	***225														cP	
Claypit Hill School Parcel	19/90/40	27.1	***162														cF	
Cochituate School Parcel	51/52/58	3±	***46														cP	dS
Happy Hollow School Parcel	43/20/10	13	***75														cP	
Loker Street School Parcel	48/80/25	17.6	***124														cP	
NOTE: School parcels include: 10 tennis courts 15 playing fields for soccer, football, or field hockey 10 baseball fields																		

d = playground equipment. ***Number of children currently enrolled in organized program.

Table VI.1 (Sheet #3) - Existing outdoor recreation facilities in Wayland.

An inventory of existing supply represents the summation of the community's recreation potential. From here one must look at potential recreation participation in order to determine the actual demand upon existing facilities and demand for new or different recreation opportunities.

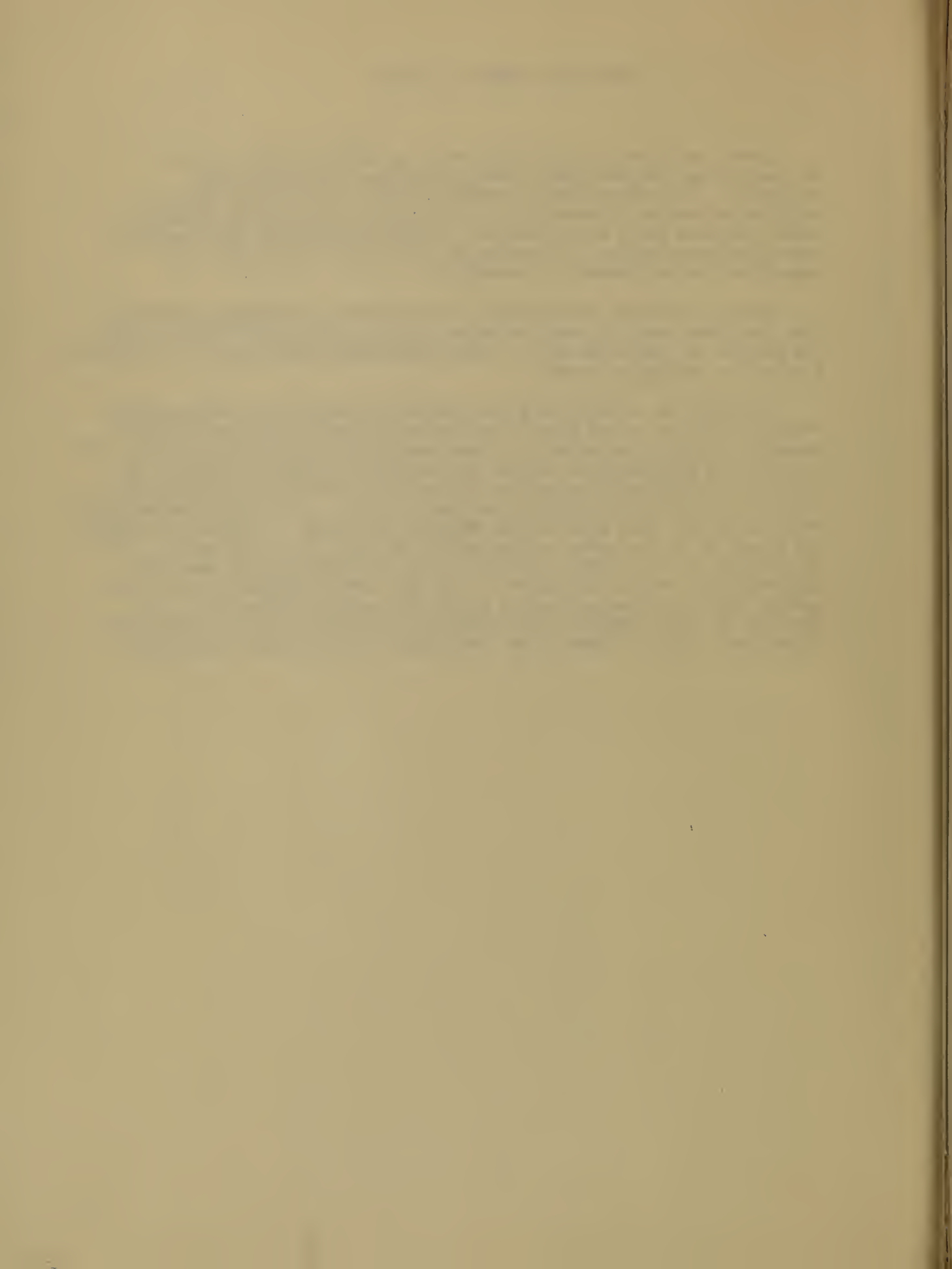


RECREATION DEMAND: ANALYSES

Demand analyses for recreation serve to indicate what people do, how people feel and what people want in the way of open space and recreation. By comparing this information with a detailed inventory of existing recreation opportunities it is possible to determine community "need" for open space and recreation. Such determinations can be used to make appropriate policy, allocation and site specific decisions with regard to planning community recreation.

Several different methodologies for determining recreation demand have been developed over the years but none can give exact quantifiable results. The purpose for employing any of these methodologies, therefore, is to establish a means for estimating demand.

It should be stressed here that recreation demands and needs analyses represent an area in the field of recreation planning that needs further research. Until a methodology is developed which can accurately qualify and quantify the psychological, social and physiological benefits derived by recreation participants, recreation planners will continue to operate partially on the basis of intuition and good judgment. The demand methodologies which follow all have positive and negative attributes. None, with the possible exception of the survey method, stands very well on its own merits. For this reason it is advisable to look at each methodology as a means for supporting the results of another. This may seem cumbersome and time consuming, but it is the best way to assure the accuracy of results. In the long run each community must determine for itself which of these techniques best suits its needs given inevitable time and energy constraints.



METHODS FOR ASSESSING RECREATION DEMAND

I. POLITICAL PROCESSES

Historically, demand and need for open space and recreation has been registered most often through our political processes, in the way of public attempts to influence political decisions affecting recreation. This kind of public influence has been felt at all governmental levels, particularly with regard to allocation and site specific decision making.

Public participation in recreation planning represents one means for reaching an understanding of community demand and need for open space and recreation. Consultation with individuals and representatives from organized groups should be an important part of the development of demands and needs analyses. There are a number of different approaches to the institution of the public participation process.

Public hearings represent one method. Generally it is a requirement of all public projects, particularly those involving state and federal funding, that public hearings be held for the purpose of allowing interested parties to voice their opinions. Minutes are generally kept and these may serve as a valuable resource to the recreation planner who is interested in how the public has reacted in the past with regard to individual recreation and open space projects. Consultation with elected community representatives such as town meeting members, aldermen, or council members may prove fruitful. Even if these people are unsure of exact sentiments within their districts, they undoubtedly have some idea as to which individual community members have a vested interest in community recreation and open space.

The organization of public advisory committees represents another means for estimating demand for open space and recreation. These committees could include representatives from several of the following groups:

- Park and Recreation Department
- Conservation Commission
- Planning Board
- Special Interest Groups
 - Organized Sports
 - Camp Directors
 - Private Recreation Firms
 - School Department
 - Council on Aging
 - Boy's/Girl's Club Directors
- Public-At-Large

Selection of individual representatives must be left to the discretion of the recreation planner. In the interest of maximizing the usefulness of this methodology, every attempt should be made to select individuals capable of representing the opinions of a broad sample of the population taking into consideration such demographic characteristics as age, sex, education, place of residence, income levels, race, etc.

The information gathered from these meetings will most likely consist of a confusing tangle of public opinions. The recreation planner must be prepared to read between the lines to separate what is important from what is not.

An advisory committee may be used not only as an aid to determine community demand and need for open space and recreation but as a sounding board for successive stages of the planning process such as the setting of goals and objectives for recreation, and the drafting of proposals for future open space acquisition and recreation development.

In summary, public participation is only effective up to a point. The accuracy of the information derived is entirely dependent on the assumption that the comments and opinions collected equally represent all public perceptions of open space and recreation demand. Again it must be stressed that the methodologies contained in this report all have limitations of one kind or another and must be used jointly to insure the accurate assessment of community demand and need for open space and recreation.

II. RECREATION STANDARDS

The use of population-based standards (e.g. 1 outdoor pool/25,000 population, 1.5 acres of playing fields/1000 population) represents one of the most widely used methods for assessing community demand and need for open space and recreation. The popularity of this method among recreation planners results from the fact that standards are easily understood and administratively convenient. They serve to indicate the adequacy or inadequacy of existing recreation supply in terms of geographically distinct segments of the population, and can be extremely useful in targeting specific neighborhood deficiencies.

As with all methods for assessing community demand for recreation the use of standards has certain limitations. To rely solely on standards, it first must be assumed that all factors affecting recreation opportunities are the same throughout the area in which the standards are applied; second, that all recreation facilities of the same type are identical; and third, that all demographically distinct segments of the population have identical needs and wants for recreation. Because of the broad nature of these assumptions the accuracy of demand analyses generated by studies of recreation standards is questionable. In the long run, standards prove most useful as a means for generating alternatives for consideration and as a means for supporting or offsetting participation data. Both the federal government through the Bureau of Outdoor Recreation and independent researchers have developed recreation standards. They vary to some extent given differences in the basic premises of the research, and recreation planners must be prepared to select the set of standards perceived most applicable to the community. The following tables contain recreation standards collected from various sources.

A. Standards for Recreational Activities

Type of Recreational Activity	Space Requirements for Activity Per Population	Ideal Size of Space Required for Activity	Recreational Area Wherein Activity May Be Located
Active Recreation			
1. Children's Play Area (with equipment)	0.5 acre/1,000 pop.	1 acre	Playgrounds-Neighborhood Parks
2. Field Play Areas for Young Children	1.5 acres/1,000 pop.	3 acres	Community Parks, School Playgrounds
3. Older Children-Adult Field Sports Activities	1.5 acres/1,000 pop.	15 acres	Playgrounds-Neighborhood Parks
4. Tennis-Outdoor Basketball	1.0 acres/5,000 pop.	2 acres	Community Parks
5. Swimming	1 outdoor pool/25,000	Competition size plus wading pool	Playfield-Community Park
6. Major Boating Activities	100 acres/50,000	2 acres	Playfield-Community Park
7. Hiking-Camping-Horseback Riding-Nature Study	10 acres/1,000 pop.	100 acres and over	District Park-Regional Park or Reservation
8. Golfing	1-18 hole course per 50,000 pop.	500-1,000 acres	Large District Park-Regional Park
Passive Recreation			
1. Picnicking	4 acres/1,000 pop.	120 acres	Community Park-District Park
2. Passive Water Sports	1 Lake or Lagoon	varies	All parks
3. Zoos, Arboretums, Botanical Gardens	1 acre/25,000 pop.	20 acre water area	Community Park
Other			
1. Parking at Recreational Areas	1 acre/1,000 pop.	100 acres	Special Regional Reservations
2. Indoor Recreation Centers	1 acre/10,000 pop.	varies	Large District Park or Special Facility
3. Outdoor Theaters, Band Shells	1 acre/25,000 pop.	1-2 acres	Playfields, Community, District & Regional Parks
B. Standards for Recreation Areas			
Type of Area	Acres Per 1000 Population	Size of Site	Radius of Area Served
		Ideal	Minimum
Playgrounds	1.5	4 acres	2 acres
Neighborhood Parks	2.0	10	5
Playfields	1.5	15	10
Community Parks	3.5	100	40
District Parks	2.0	200	100
Regional Parks and Reservations	15.0	500-1,000	varies
			0.5 miles
			0.5
			1.5
			2.0
			3.0
			10.0

Standards

*

Space Requirements

Gross Acreage - One acre of public recreation land for each 100 population distributed throughout the community to meet varying recreation needs

Playlot - Playlots usually consume 1/4 acre or less and are designed for tiny tots of pre-school age, often located on private corner lots in residential areas or public housing developments

Playground - Space varies with the size of neighborhood, but the following schedule should be adequate:

Neighborhood Population	Minimum size in Acres
1,000	2.75
2,000	3.25
3,000	4.00
4,000	5.00
5,000	6.00

Playfield - One acre for each 800 of the present or future population. Ten to twelve acres should be the minimum for a playfield to serve 4 neighborhoods or approximately 20,000 people.

Parks - The small neighborhood park usually takes advantage of some scenic value, such as a lake or woodland. No specific requirement is observed here, however, a minimum of two acres might be adequate where not connected with a playground or active recreation area.

Each community over 15,000 population should have at least one large park, ranging from 75 to 100 acres.

Specialized Areas & Facilities

The following areas and facilities may be developed on separate tracts of land or in connection with a playfield, park, or other area

Golf - One hole of publicly owned golf to every 3,000 population. Forth to fifty acres are needed for a nine-hole course.

Swimming - Facilities for swimming should be sufficient to serve three per cent of the population at one time, 12 sq. ft. of water space for each swimmer. Bathing beaches an artificial pool areas should have ample parking facilities.

Amphibic field or Stadium - Usually operated in connection with the high school, such areas might require as much as 20 acres, including parking and seating space.

/* The National Recreation Association has been a leader in the field of Recreation. The following summary was compiled from their publication, Standards for Neighborhood Recreation Areas and Facilities, (1944).

Outdoor Theaters - This facility will vary with each community. The small community may require a number of outdoor theaters, one in each neighborhood playground, or playfield, for instance, seating 100 or more people.

Baseball and Softball - Interest in these sports will vary with the community. Usually, one baseball diamond will serve 6,000 people, and one softball diamond 3,000 people.

Tennis - As the demand increases, public tennis courts should be provided one for each 2,000 people.

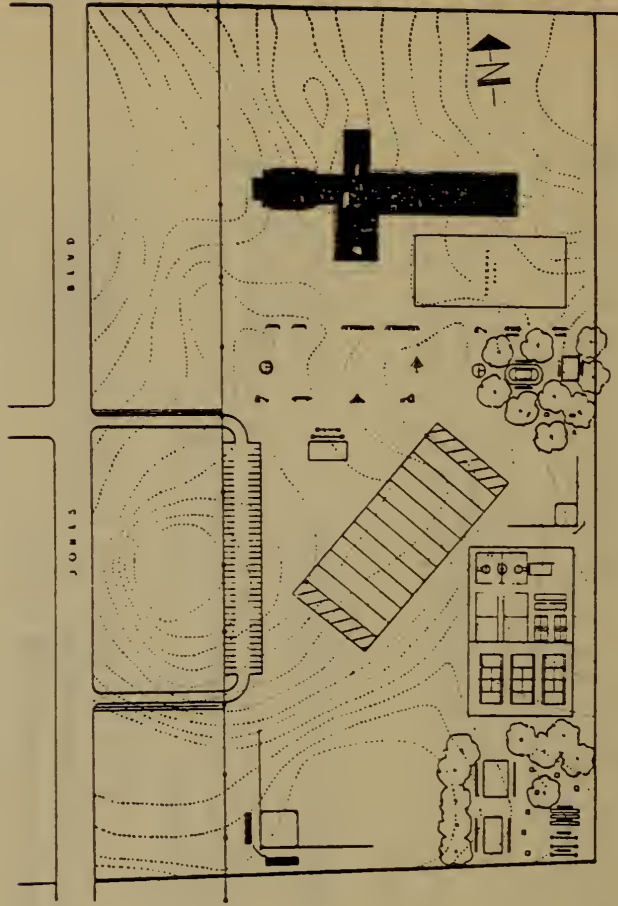
Recreation Building - One recreation building should be adequate to serve a 20,000 population, and should include a gymnasium and seating for basketball, volleyball, badminton, dances and other social events; auditorium with stage; clubrooms for multiple use; reading room; arts and crafts rooms; special dining room; game room for billiards, shuffleboard, and table games; kitchen and snack bar; staff office; and ample storage space. Since school buildings are rapidly taking the place of recreation buildings, each community should evaluate its position before making a large expenditure for indoor recreation facilities.

Equipment & Features

Neighborhood Playgrounds - Such playgrounds are intended primarily to provide active recreation for children of grade and junior high school ages. During recent years, however, the emphasis

has been to provide also indoor and outdoor recreation for adults as well. Most of the following features should be incorporated.

- 1 Corner for pre-school children
- 2 Apparatus area for older children
- 3 Open space for informal play
- 4 Surfaced area for court games
- 5 Field games such as softball, touch football and mass games
- 6 Area for story telling, dramatics, etc.
- 7 Shelter house
- 8 Wading pool
- 9 Corner for table games and other activities for older people



MITCHELL-NIELSON SCHOOLGROUNDS
planned for recreational needs of Murfreesboro.

COMPARISON OF EXISTING RECREATIONAL FACILITIES
WITH DESIRABLE STANDARDS

TYPE	STANDARD	REQUIRED	EXISTING No. or Acres	DEFICIENCY ⁽¹⁾ No. or Acres
Playgrounds	1 acre per 1,000 persons	450 Acres	Schools 106 A Parks 97 A 203 A	247 Acr.
Playfields	1 acre per 800 persons	562.5 Acres	109 A ⁽²⁾	453.5 Acr.
Neighborhood Parks	1 acre per 1,000 persons	450 Acres	243 A	207 Acr.
Large Parks	1 park per 40,000 persons	11 Parks	4 Parks 2,163 Acr.	7 700 Acr.
Community Recreation Buildings	1 per 20,000 persons	23	11 ⁽³⁾	12
<u>OUTDOOR FACILITIES</u>				
Baseball Diamonds	1 per 6,000 persons	75	5 major 13 minor 18	49
Softball Diamonds	1 per 3,000 persons	150	38	112
Golf Courses	1 per 54,000 persons	8	8 ⁽⁴⁾	-
Swimming Pool		10	4	6
Spray or Wading Pool	each play ground	90	13	77
Tennis Courts	1 per 2,000 persons	225	115	110
<u>INDOOR FACILITIES⁽³⁾</u>				
Gymnasium	1 per 10,000 persons	45	58	-
Auditorium	1 per 20,000 persons	23	71	-
Social or Play Room	1 per 10,000 persons	45	77	-
Reading and Quiet Game Room	1 per 10,000 persons	45	13	32
Game Room	1 per 10,000 persons	45	77	-
Arts and Crafts Room	1 per 10,000 persons	45	62	-
Club or Multiple Use Room	1 per 4,000 persons	112	58	54
Swimming Pool	1 per 50,000 persons	9	14	-

(1) The deficiencies are based upon an estimated population of 450,000 in Kansas City in 1945-1946

(2) Including approximately 41 acres of athletic fields at high schools

(3) Including partial use of school buildings

(4) Including fee courses

DESIRABLE STANDARDS FOR RECREATIONAL FACILITIES

I. Neighborhood playgrounds

A. Size and location

- (1) One acre of playground area for each 125 children (age 5 to 14) or for each 1,000 of total population
- (2) Minimum area of 5 acres
- (3) Within 1/4 to 1/2 mile of the resident population, depending upon population density and ease of access

B. Necessary facilities

- (1) Pre-school area
- (2) Apparatus area
- (3) Hard-surfaced multiple-use area
- (4) Open area for mass games and for informal play
- (5) Shelter house with toilet facilities
- (6) Spray slabs
- (7) Table game area

II. Playfields

A. Size and location

- (1) One acre for each 800 of total population (minimum of one field per 20,000 persons)
- (2) Minimum area 10 acres, preferably 20 acres in size
- (3) Within 1/2 mile to 1 mile of all of the resident population, depending upon population density and ease of access

B. Suggested facilities

- (1) Baseball
- (2) Softball
- (3) Football
- (4) Hockey field
- (5) Court game areas
- (6) Lawn areas for croquet and for archery

III Community recreation buildings

A. Size and location

- (1) At least one per 20,000 persons
- (2) Minimum size of each building should be 12,500 sq. ft.
- (3) Within one mile of all the resident population
- (4) Located in playfield or neighborhood park.

B. Recommended facilities

- (1) Gymnasium, with
 - (a) Removable seats for spectators
 - (b) Lockers and showers
- (2) Assembly hall or auditorium, with
 - (a) Stage
 - (b) Preferably removable seats
- (3) Room for informal reading and quiet table games
- (4) Room equipped for arts and crafts
- (5) Social or play room for small group parties

-5-

- (6) Room for active games, such as
 - (a) Table tennis
 - (b) Billiards
 - (c) Darts
 - (d) Shuffleboard
- (7) Two or more club or multiple-use rooms
- (8) Office for the Director
- (9) Refreshment stand or snack bar
- (10) Kitchen for preparing meals or light refreshments
- (11) Essential service rooms and facilities, including ample storage spaces for equipment and supplies

IV. Neighborhood parks

A. Size and location

- (1) One acre for each 1,000 of total population
- (2) Preferably in combination with a playground, playfield, school or community center - or may be part of a large park
- (3) Within easy walking distance of every home - within 1/4 to 1/2 mile of the resident population, depending upon population density and ease of access
- (4) 4 - 7 acres when developed as an individual unit,
2 - 4 acres when developed adjoining an active recreational area

- B. Relatively small park area developed with lawn areas, shrubbery, trees, walks, picnic areas etc. to afford a place for quiet, passive recreation for all ages

V. Large parks

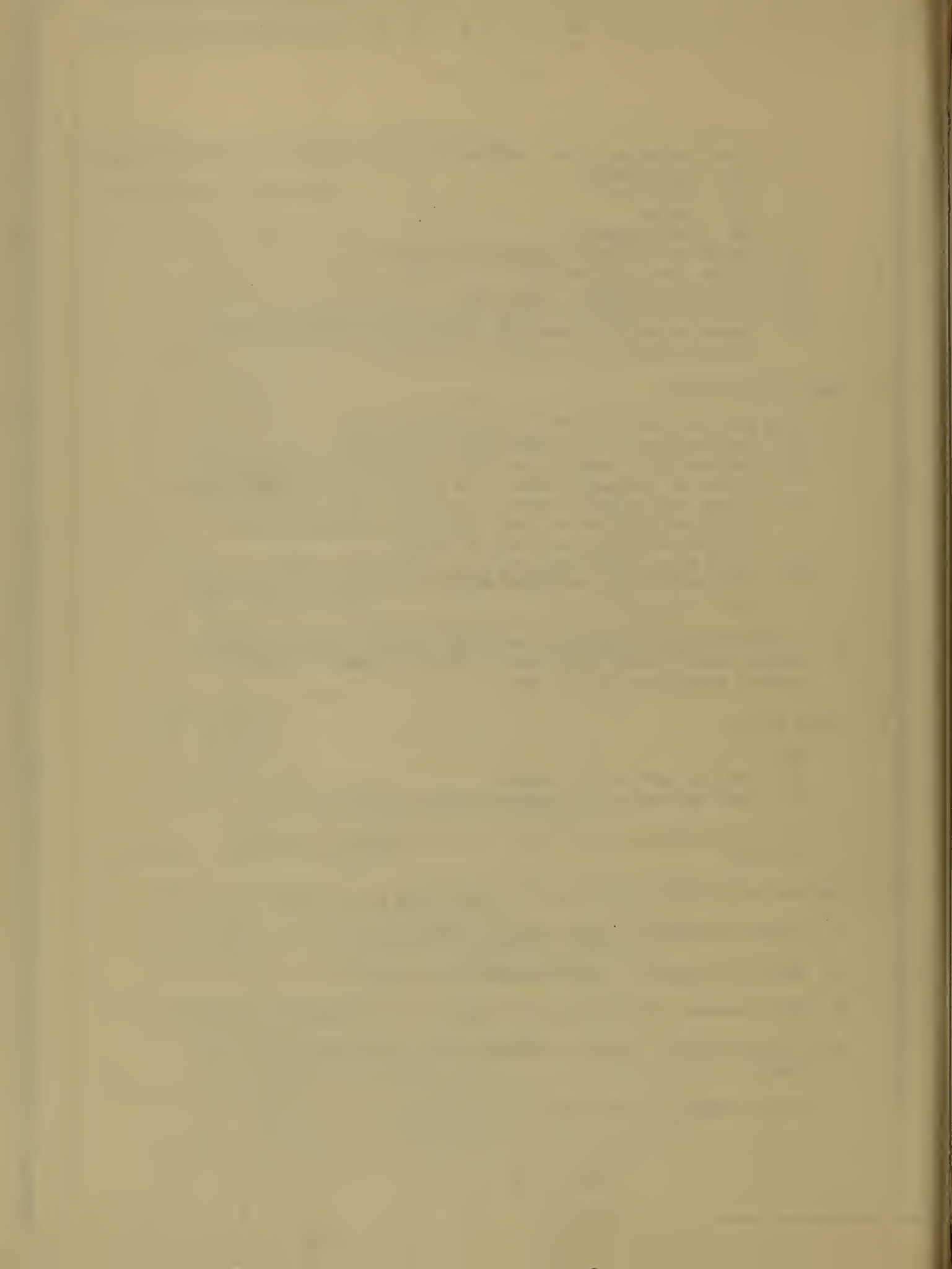
A. Size

- (1) One for each 40,000 persons
- (2) Each park about 100 acres or more in size

- B. Size, distribution and location to be determined by natural features

VI. Outdoor facilities to be located in playfields and in parks

- A. Baseball diamonds - one for each 6,000 persons
- B. Softball diamonds - one for each 3,000 persons
- C. Golf courses - one 18 hole golf course for each 54,000 persons
- D. Swimming pools - capable of serving 3% of the population at one time
- E. Tennis courts - one for each 2,000 persons



III. PARTICIPATION RATES

Analyses of participation rates are widely used to make inferences regarding recreation demand. By studying participation rates the recreation planner can gain some insight into the relative popularity of individual recreation activities, the relative preferences of different user groups, and ultimately the adequacy of existing recreation resources. Data concerning rates of recreation participation can be generated in two ways, through user counts at individual recreation sites, and through household surveys.

Compiling comprehensive data through user counts is a long and tedious process. For the sake of accuracy, all existing recreation resources must be studied, and care must be taken to account for variables such as weather, time of day, day of the week, month of the year, demographics of users, availability of alternative recreation resources, availability of transportation, user fees, condition of facilities, activities available, etc.

All of these factors have a causal relationship to user counts, and must be considered as part of the analysis of participation rates in order to assure the validity of drawing comparisons between different recreation opportunities. In the end, user counts, because they involve the collection of data concerning existing site-specific recreation resources, may be more useful in drawing conclusions about recreation supply than in drawing conclusions about recreation demand.

The use of household surveys is a much less time consuming and more accurate means of generating participation data. Through this method the recreation planner can effectively isolate the variables he wishes to study without jeopardizing the accuracy of the analysis. He can generate statistical information about participation rates for individual activities and may choose to examine any of a number of cross-referenceable variables (e.g. age, sex, income, education, place of residence, etc.). The survey method gives the recreation planner a general feeling for what activities are most in demand and can be used both in formulating recreation policy and in making specific decisions concerning the allocation of recreation resources. A sample survey for use in generating participation data follows.

Sample Questions for Generating Participation Data

1. During the warm weather months what three recreation activities do you or other members of your household participate in most often?

1. _____
2. _____
3. _____

2. When participating in from above (1,2,3) do you usually use

1. Municipal facilities
2. State facilities
3. Federal facilities
4. Private facilities
5. Non-profit Organization facilities
6. Commercial facilities
7. Other (specify) _____

3. During the cold weather months what three recreation activities do you or other members of your household participate in most often?

1. _____
2. _____
3. _____

4. When participating in from above (1,2,3) do you usually use

1. Municipal facilities
2. State facilities
3. Federal facilities
4. Private facilities
5. Non-profit Organization facilities
6. Commercial facilities
7. Other (specify) _____

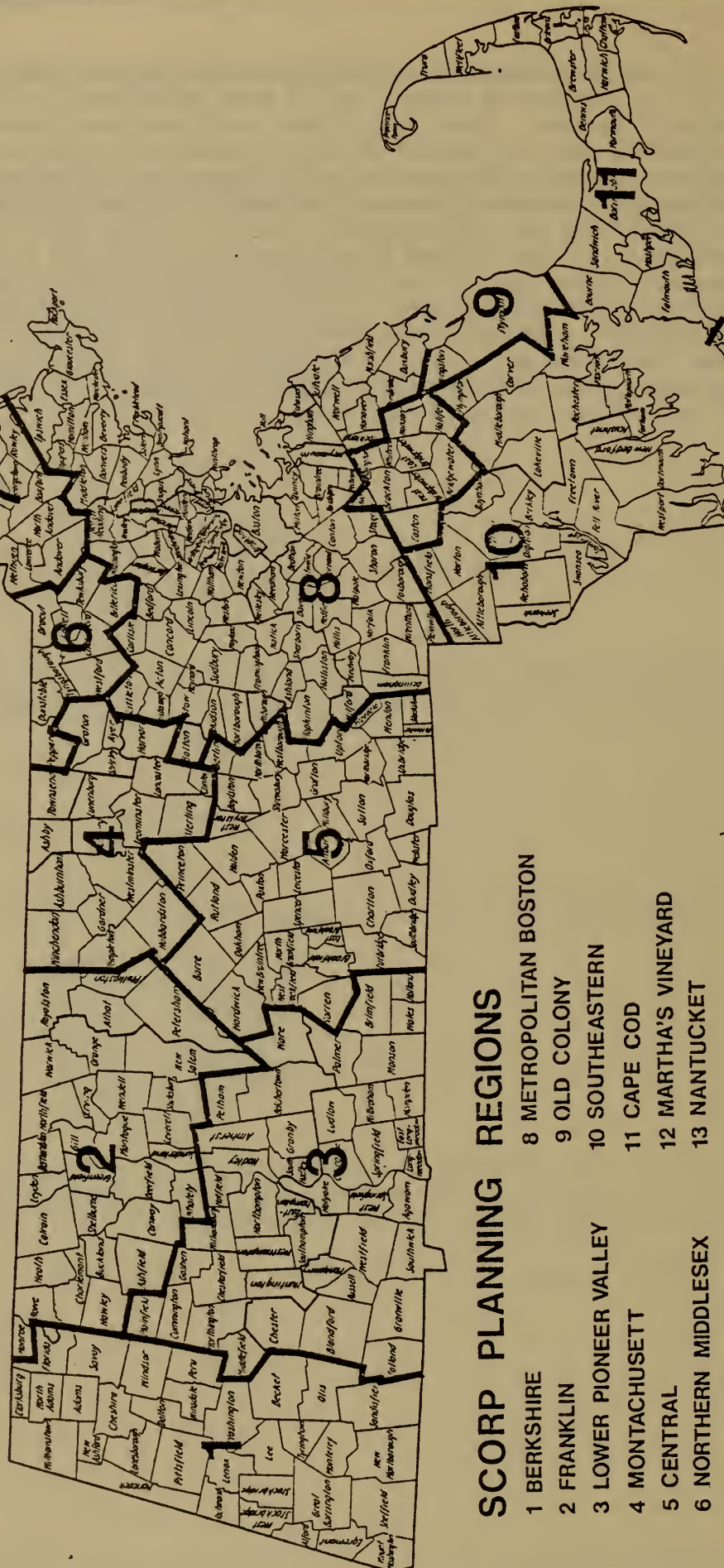
5. It is important for us to know how households with different age and sex characteristics feel about recreation in community. Would you help us by giving the age-group and sex of each member of your household?

1.	Respondent	M F	elementary	teen	adult	elderly
2.		M F	"	"	"	"
3.		M F	"	"	"	"
4.		M F	"	"	"	"
5.		M F	"	"	"	"

Participation data has also been used at the state and federal levels to establish recreation trends, and to make projections for future recreation participation. These projections have been based primarily on past participation data and population growth estimates, adjusted to reflect projected changes in the socio-economic character of the population. The Massachusetts Statewide Comprehensive Outdoor Recreation Plan (SCORP) outlines projections for participation through the year 2000 for numerous recreation activities. These figures may be used by the local recreation planner to further support local assessments of community demand and need for recreation. Included here are participation rates and projections from the 1978 SCORP. For additional information as to the methodology used to compile these figures, a copy of the SCORP may be obtained by contacting the Massachusetts Department of Environmental Management, Office of Planning.

MASSACHUSETTS

CITY AND TOWN LINES



SCORP PLANNING REGIONS

- | | |
|------------------------|-----------------------|
| 1 BERKSHIRE | 8 METROPOLITAN BOSTON |
| 2 FRANKLIN | 9 OLD COLONY |
| 3 LOWER PIONEER VALLEY | 10 SOUTHEASTERN |
| 4 MONTACHUSETT | 11 CAPE COD |
| 5 CENTRAL | 12 MARTHA'S VINEYARD |
| 6 NORTHERN MIDDLESEX | 13 NANTUCKET |
| 7 MERRIMACK VALLEY | |

SCALE
MILES

Map 1

13

11

10

8

5

4

2

3

12

DEFINITIONS

- . Activity - Any one of the 21 recreational pursuits listed in Table 28.
- . Participation Rate - The percentage of a given population taking part in a given activity.
- . Activity Day - The use of a recreation facility for any period of time during a single day.

TABLE 28

PARTICIPATION BY REGION LIVED IN

REGION	BICYCLING	BOATING (MOTOR)	CANOEING/ SAILING	CAMPING (TRAILER)	CAMPING (SITE)	FISHING	GOLF
I	19.4	11.1	19.4	5.6	13.9	25.0	16.7
II	37.5	6.3	18.8	0.0	18.8	37.5	12.5
III	44.0	13.5	15.6	7.8	14.9	31.2	14.9
IV	43.2	18.2	18.2	13.6	22.7	43.2	9.1
V	37.4	17.6	17.6	11.0	17.6	29.7	15.4
VI	58.1	19.4	0.0	16.1	19.4	38.7	6.5
VII	32.4	19.1	17.6	11.8	26.5	23.5	11.8
VIII	42.9	15.2	21.8	5.2	13.6	18.9	11.9
IX	38.5	28.2	17.9	10.3	20.5	33.3	20.5
X	42.7	20.0	13.6	11.8	16.4	32.7	15.5
XI	34.6	30.8	26.9	0.0	3.8	46.2	23.1
XII	66.7	33.3	66.7	0.0	0.0	0.0	0.0
XIII	66.7	33.3	66.7	0.0	0.0	0.0	0.0

SCORP PLANNING REGIONS

I. Berkshire
 II. Franklin
 III. Lower Pioneer Valley
 IV. Massachusetts

V. Central
 VI. Northern Middlesex
 VII. Merrimack Valley
 VIII. Metropolitan Boston

IX. Old Colony
 X. Southeastern
 XI. Cape Cod
 XII. Martha's Vineyard
 XIII. Nantucket

TABLE 28

PARTICIPATION BY REGION LIVED IN (CONTINUED)

REGION	HIKING	HORSEBACK RIDING	HUNTING	ICE SKATING	X-COUNTRY MOTOR BIKING	PICNICKING	TARGET SHOOTING
I	27.8	2.8	11.1	22.2	0.0	63.9	8.3
II	12.5	6.3	12.5	25.8	0.0	50.0	12.5
III	35.5	7.8	4.3	25.5	1.4	61.0	7.8
IV	27.3	6.8	6.8	29.5	4.5	56.8	15.9
V	31.9	5.5	7.7	28.6	3.3	58.2	13.2
VI	35.5	9.7	3.2	38.7	3.2	51.6	3.2
VII	19.1	4.4	8.8	26.5	2.9	38.2	8.8
VIII	18.7	4.6	2.4	24.3	1.5	41.7	6.5
IX	17.9	7.7	5.1	20.5	5.1	28.2	7.7
X	19.1	4.5	3.6	22.7	4.5	41.8	8.2
XI	7.7	0.0	0.0	26.9	0.0	30.8	0.0
XII	33.3	0.0	0.0	0.0	0.0	33.3	33.3
XIII	33.3	0.0	0.0	0.0	0.0	33.3	33.3

SCORP PLANNING REGIONS

I. Berkshire
 II. Franklin
 III. Lower Pioneer Valley
 IV. Montachusett

V. Central
 VI. Northern Middlesex
 VII. Merrimack Valley
 VIII. Metropolitan Boston

IX. Old Colony
 X. Southeastern
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 XII. Martha's Vineyard
 XIII. Nantucket

TABLE 28

PARTICIPATION BY REGION LIVED IN (CONTINUED)

REGION	DOWNHILL SKIING	X-COUNTRY SKIING	SNOWMOBILING	SWIMMING (POOL)	SWIMMING (NON-POOL)	TENNIS	NATURE WALKING
I	11.1	2.8	8.3	25.0	52.8	11.1	38.9
II	12.5	18.8	0.0	37.5	50.0	43.8	43.8
III	7.8	5.0	3.5	57.4	58.9	26.2	40.0
IV	20.5	6.8	2.3	45.5	70.5	36.4	29.5
V	8.8	5.5	5.5	60.4	65.9	31.9	39.6
VI	25.8	9.7	6.5	58.1	71.0	41.9	32.3
VII	14.7	2.9	8.8	55.9	57.4	23.5	27.9
VIII	12.1	7.4	4.3	55.0	65.9	32.0	32.6
IX	12.8	7.7	20.5	61.5	56.4	41.0	28.2
X	5.5	2.7	1.8	40.0	58.2	29.1	38.2
XI	7.7	7.7	0.0	19.2	57.7	11.5	50.0
XII	0.0	0.0	0.0	0.0	100.0	100.0	100.0
XIII	0.0	0.0	0.0	0.0	100.0	100.0	100.0

SCORP PLANNING REGIONS

I. Berkshire
 II. Franklin
 III. Lower Pioneer Valley
 IV. Montachusett

V. Central
 VI. Northern Middlesex
 VII. Merrimack Valley
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IX. Old Colony
 X. Southeastern
 XI. Cape Cod
 XII. Martha's Vineyard
 XIII. Nantucket

TABLE 32

PROJECTED ACTIVITY DAYS
(in thousands)

ACTIVITY/YEAR	'77	'80	'85	'90	'95	2000
Bicycling	151,455	155,499	154,555	153,475	154,719	155,750
Motorboating	24,322	25,157	25,743	25,325	27,304	28,010
Sailing/Canoeing	25,765	26,604	26,665	26,628	25,940	27,165
Trailer Camping	10,316	10,724	11,110	11,202	11,482,	11,812
Camping (site)	15,635	16,187	16,262	15,760	15,528	15,572
Fishing	43,245	44,366	45,008	45,422	47,046	48,398
Golf	20,118	21,069	22,009	22,665	23,392	23,793
Hiking	40,741	42,093	43,119	43,462	44,138	44,970
Horseback Riding	10,960	11,116	10,821	10,455	10,463	10,552
Hunting	7,933	8,135	8,209	8,209	8,436	8,571
Ice Skating	43,557	43,854	42,318	41,120	41,598	42,086
Cross Country Motorbiking	3,437	3,617	3,703	3,646	3,703	3,685
Picnicking	44,791	47,350	49,433	50,546	51,516	52,008
Shooting/Archery	11,074	11,327	11,364	11,409	11,815	12,063
Downhill Skiing	12,167	12,607	12,671	12,521	12,566	12,601
Cross Country Skiing	4,794	5,024	5,163	5,171	5,189	5,241
Snowmobiling	7,277	7,389	7,303	7,156	7,256	7,394
Pool Swimming	122,268	125,858	126,824	127,484	130,327	133,137
Swimming (non-pool)	100,162	103,403	104,312	104,738	106,720	108,585
Tennis	64,966	67,819	69,329	70,346	71,681	71,961
Nature Walking	128,547	133,166	138,009	142,319	146,029	149,888

TABLE 33

ANNUAL PERCENT CHANGE

ACTIVITY/YEAR	'77	'80	'85	'90	'95	2000
Bicycling	2.6	- .6	- .6	.8	.6	
Motorboating	3.4	2.3	2.2	3.7	2.5	
Sailing/Canoeing	3.2	.2	- .1	.1	.8	
Trailer Camping	3.9	3.5	.8	2.4	2.8	
Camping (site)	3.5	.4	-3.0	-1.4	.2	
Fishing	2.5	1.4	.7	3.5	2.8	
Golf	4.7	4.4	2.7	3.2	1.7	
Hiking	3.3	2.4	.7	1.5	1.8	
Horseback Riding	1.4	-2.6	-3.3	.1	.8	
Hunting	2.5	.9	0	2.7	1.6	
Ice Skating	.6	-3.5	-2.8	1.1	1.1	
Cross Country Motorbiking	5.2	2.3	-1.5	1.5	- .4	
Picnicking	5.7	4.3	2.2	1.7	.9	
Shooting/Archery	2.2	.3	.3	3.5	2.0	
Downhill Skiing	3.6	.5	-1.1	.3	.2	
Cross Country Skiing	4.7	2.7	1.	.3	1.0	
Snowmobiling	1.5	-1.1	-2.0	1.3	1.9	
Pool Swimming	2.9	.7	.5	2.2	2.1	
Swimming (non-pool)	3.2	.8	.4	1.8	1.7	
Tennis	4.3	2.2	1.4	1.8	.3	
Nature Walking	3.5	3.6	3.1	2.6	2.6	

In general, analyses of participation rates can prove very useful in the assessment of community demand and need for open space and recreation, however this method also has limitations. To rely solely on participation data is to ignore the fact that high participation in a given activity could be a product of numerous recreation opportunities or lack of other alternatives. In other words, participation rates may be an indication of supply as well as demand.

When drawing conclusions about recreation demand based on participation data, the recreation planner must be careful to consider supply as a prime component of the analysis. This method also leaves some important questions unanswered:

1. Why are participation rates for individual activities high or low?
2. What do recreation participants perceive as their wants and needs for open space and recreation?
3. How might recreation participants benefit by the allocation of additional recreation resources?

If the survey method is employed for generating participation data the answers to these questions and others could be determined simply by expanding the survey to include the exploration of other issues. A more extensive explanation of survey methodologies is included in this report. Again it should be stressed that no one method for evaluating recreation demand is sufficient to insure the complete accuracy of results. All these methods have limitations, and the recreation planner must be willing to look objectively at each method, assess its strengths and weaknesses, and act accordingly to make the final analysis as accurate as possible.

IV. SURVEY METHOD

The use of surveys represents the most accurate and comprehensive means for determining community demand and need for open space and recreation. Surveys enable the recreation planner to effectively isolate the variables he wishes to study and present a means for obtaining direct answers to the often complex questions which arise in the process of analyzing community demand and need for recreation.

The beauty of the survey method lies in the fact that the recreation planner has the power to adapt the methodology to fit his specific areas of interest and the specific characteristics of his community. No other demand methodology is capable of this kind of adaptation, nor can any other technique provide the kind of intimate knowledge about what people do for recreation, what people want in the way of recreation, and how people feel about recreation.

Surveys can give the recreation planner insight into what motivates recreation behavior, what inhibits recreation participation, and what importance the community places on recreation and the provision of recreation resources. Through statistical analyses of survey data it is then possible to reach an understanding of how different responses compare and what their relationships are to other factors such as age, sex, place of residence, and ultimately recreation supply.

A. SURVEY DESIGN

The key to the success of the survey methodology is careful planning. The survey itself must be designed to gain a maximum of useful information through a minimum of questions. Long surveys are more difficult and more costly to administer, and people are less likely to take the time for thoughtful answers.

The first step in the preparation of the survey itself is to establish the major issues for which information must be gathered. Three general areas establish a framework for survey questions.

I. What Do People Do For Recreation?

- A. What activities do people participate in most?
- B. Where do people participate in those activities?
- C. How often do people use community provided recreation areas and facilities?
- D. What (if anything) keeps people from using community provided recreation resources?

These questions indicate activities which enjoy the highest rates of participation, where that participation is likely to take place (community facilities, private facilities, state facilities, etc.), and how often, and what barriers the public feels keep them from using community provided recreation resources. From this information, the recreation planner can begin to target specific facility and program areas for further investigation. For example, high rates of participation in bicycling and swimming would indicate a need to look more closely at community programs and facilities which involve these activities. On the other hand, extremely low participation rates for these activities might indicate a lack of interest or a low supply of existing bicycling and swimming facilities and programs. A general lack of participation at community recreation facilities might indicate dissatisfaction with existing resources or a general preference for some other type of facility, private, state, etc. Finding out what keeps people from using community resources is vital to this kind of analysis.

The reasons given may indicate to the recreation planner ways in which community facilities and programs could be altered or improved to better meet existing recreation demand. Participation data is useful to the extent that it helps the recreation planner know the current popularity of individual activities, and ultimately points the way to other questions. Such as, how do these figures compare with existing supply? Now that we know what people do for recreation and where they do it, the next question to ask is, what do people want to do for recreation?

II. What Do People Want In The Way Of Recreation?

- A. What activities would people like to participate in more often?
- B. What keeps people from participating in those activities more often?
- C. How could community provided recreation be improved?
- D. Given a series of alternatives for improving community recreation resources, which are most preferred?

These questions serve to indicate community desire for participation in various recreation activities; what keeps people from participating in those activities; and generally what kinds of improvements the public feels should be made in the way of community provided recreation resources. All of this information is essential to a comprehensive analysis of community demand and need for open space and recreation. Comparisons drawn between "desired participation" data and "actual participation" data can show dramatically those areas in which a community's provision of recreation resources is adequate or deficient. For example, if swimming enjoys a high degree of participation but a low degree of desired participation, it can be assumed that the community's provision of swimming resources is fairly adequate. On the other hand if a low degree of participation in swimming is coupled with high desire for participation it is likewise reasonable to conclude that the community's provision of swimming facilities is less than adequate. Activities which show both high desire and high participation give the recreation planner an indication that resources for the provision of those activities may need improvement in order to fully meet the public demand. Where low participation and low desire are shown for a given activity it may be an indication that resources for that activity should not be considered for improvement. In comparing desire for recreation participation with actual recreation participation the recreation planner can begin to reach a good understanding of which program and facility areas are adequate, and which need improvement.

Information as to public desire for participation in recreation also implies that there are reasons why the public does not participate in various activities. By asking questions as to what barriers inhibit recreation participation, the recreation planner can obtain specific information which may be useful in determining actual strategies for the implementation of program and facilities improvements. For example, if a person answers that swimming is an activity in which he desires to participate, the question should be asked: why is it that you don't now participate in swimming? Answers to this question may range from, "no motivation" to facilities too crowded" to "no facilities nearby". Clarification as to why participation is desired is essential to the recreation planner in terms of reaching an understanding of what motivates and inhibits recreation participation. The recreation planner can, through statistical analyses of this data, begin to make some decisions about how existing recreation resources could be improved to better meet public demand and need for recreation.

III. How Do People Feel About Recreation?

- A. How important do people feel recreation is?
- B. How satisfied are people with existing community provided recreation?
- C. How aware are people of existing community provided resources?

The generation of data concerning intangibles such as public perceptions of the importance of recreation, and the adequacy of existing community provided resources, constitutes an important component of the recreation demand analysis. Although this information is less likely to have a direct affect on individual allocation or site-specific recreation decisions it may enable the recreation planner

to arrive at a better understanding of public priorities and may ultimately be useful in the establishment of community recreation policies.

B. SAMPLE SELECTION

The methods used for sample selection and survey administration will also have a dramatic impact on the accuracy of resulting data. As such, the recreation planner must use great care to assure that error is not introduced through biased sampling or nonuniform administration.

In communities of more than few hundred households, the prospect of distributing surveys to each and every household presents a massive undertaking, both in terms of the cost of survey administration, and the time involved for collection and collation of data. For this reason, mathematically based techniques have been developed to enable the researcher to select from the community-at-large, a group of respondents whose opinions will accurately reflect those of the whole community. The techniques described below are all modifications of what statisticians call random sampling. This method of selecting respondents is based on mathematical probability theory. Short of giving a mathematical explanation of these techniques, it is difficult to describe how and why random sampling represents the most accurate means of selecting those households which should be polled. As such, the descriptions outlined below are meant strictly as an introduction to the various techniques available for selecting a survey sample. Communities interested in using the survey method for assessing recreation demand are encouraged to contact the MAPC for assistance in selecting and implementing the sampling procedure which best fits their needs and capabilities.

In the context of recreation planning, the most effective sampling techniques are simple random sampling, stratified sampling, cluster sampling and interval sampling.

Simple Random Sampling

Simple random sampling represents the foundation for the three other sampling techniques mentioned above. This method is based on the premise that chance alone should be the determining factor in selecting a representative group of respondents from the community-at-large. This concept seems contradictory given that we are by nature and habit reluctant to surrender any decision making process strictly to chance or probability. However, a completely random selection procedure eliminates other biasing factors such as a personal preference, etc. and assures that each and every individual household has an absolutely equal chance of being selected. In this way, mathematical probabilities can act independently of other factors in producing a sample of respondents who can accurately represent the community as a whole.

To implement this sampling technique the recreation planner must first compile a complete listing of all households within the community. This can be done through the use of assessor's plats or files which contain information about all houses on all streets within the given city or town; through raw census data; and town or city True Lists which show the names and addresses of all adult community members indexed first by street name and second, by street number. Once a list has been compiled, each household is serially numbered, and a "Table of Random Numbers" can be used to select individuals from the number pool.

Interval Sampling

Interval sampling consists of roughly the same procedures as simple random sampling. It produces equally accurate results however is more simply executed. To implement the interval sampling technique the recreation planner must, again, compile a complete listing of all households within the community. After each household is serially numbered, the researcher determines an interval for selection. For example, given a total of 1000 households let us say that the recreation planner wants a sample of 50 respondents for his survey. Using the interval sampling method, every 1000/50 or 20th household on the list would be taken to form the sample. The first of these would be selected at random from the first 20 numbers and the others would follow sequentially, being selected at 20 number intervals from the starting point. It is important to remember when using this method that once an interval for selection has been established one must go through the entire list to form an accurate sample. To stop half-way through in essence omits half of the household from the selection process and would undoubtedly lead to biased results and inaccurate data.

Stratified Sampling

Stratified sampling is marked by the grouping of household into specified strata prior to the selection process. A sample is then taken randomly from each of those strata, the data is collected and the results compared. This method is particularly useful when large natural divisions of the population are evident, or when the researcher wishes specifically to compare responses from defined segments of the population. In the context of recreation planning, this method may be used to compare needs of varying income groups, age groups, race groups, etc. This method is obviously more complex than simple random sampling. Through stratified sampling, the recreation planner may gain a high degree of accuracy from a significantly smaller sample size. Stratification automatically causes specific segments of the population to be represented, where the use of a simple random sampling procedure requires that a larger sample be selected to insure the representation of these specific groups. The fact that considerable time and energy must be spent stratifying the original household list should be weighed carefully against the benefits of using a smaller sample. Where the recreation planner wishes to draw comparisons between distinct segments of the population, remember that the survey itself may also be used to isolate various demographic characteristics.

Cluster Sampling

Cluster sampling is a technique often used when complete lists of all households within a given community are not available, are not current, or are impossible to compile. Instead, this method relies on mapping. By using assessor's plats (maps showing all streets and dwelling units) the community can be divided geographically into neighborhoods, blocks, precincts, or wards. These divisions constitute clusters. Care should be taken to assure that each cluster is roughly equal in terms of population size. The clusters are then serially numbered and a random sample of groups is taken. The households within each selected group are then numbered and another random sample is drawn from each cluster to form the final sample. This method is administratively convenient particularly if personal interviews are going to be used to collect data. It does have some fairly serious disadvantages. It is not as accurate a means

of sampling as the simple random sampling method. It limits the diversity of the sample, because households in a given neighborhood or cluster are apt to be fairly homogenous. As such, households sampled from within each of those clusters may individually produce very similar data. For this reason, it is best to divide the community into small clusters varying widely from one another, even though each may be homogenous within itself, than it is to divide the community into a few large clusters which lack diversity both within and among themselves.

Sample Size

In the course of any discussion of sample selection, a question as to sample size invariably arises. How many individual households must be selected from the total pool to insure accuracy of representation? Unfortunately there are no easy answers. The sample size must vary according to a number of different factors, from the sampling technique used to the diversity of the original pool. To declare a specific percentage of the total population an accurate sample size would be misleading at best. There are however a number of mathematical techniques which can be used to determine a safe sample size. Communities which are interested in employing the survey method for assessing recreation demand are encouraged to contact the MAPC for assistance in selecting and implementing the sampling procedure which best meets their specific needs and capabilities.

C. SURVEY ADMINISTRATION

Once the sample has been selected the recreation planner must determine which method should be utilized for the actual administration of the survey, given community time and energy constraints. There are three available options, direct mailings, personal interviews, and telephone interviews.

The use of direct mailings represents the most administratively convenient of all the given options. Once the survey has been designed it is merely mailed to each sample household, and the recreation planner awaits the return of the questionnaires for analysis. This method is not necessarily the most inexpensive, however. To assure maximum returns, self-addressed, stamped envelopes should be included as well as a cover letter explaining the purpose of the survey and the importance of promptly returning the completed questionnaires. Given the costs of printing and mailing, even at bulk rates, this method may be costly.

The key to the accuracy of the survey method lies in the uniformity of the survey administration from one sample household to another. The fact that survey administration is out of the recreation planner's control once the surveys are in the mail represents one distinct disadvantage of this method of distribution. There are no guarantees as to the number of questionnaires which will be returned, and how many of those will be correctly and responsibly completed. It is essential that surveys administered in this manner be as clear, concise, and unambiguous as possible. Survey questions must be carefully worded and organized to assure that there will be no question as to how they should be answered.

The use of personal interviews represents another means of survey distribution. This method requires considerable staff time and measures must be taken to insure that all interviews are conducted uniformly. There are a number of ways to handle the problem of finding responsible interviewers. The recreation planner, depending on the size of the selected sample and the funds at his disposal, may choose to use his own staff, hire a consultant, solicit volunteers from the community, hire individuals, or look to various universities for students who might be willing to help with the study as part of a school related project. All of these options are viable provided that the recreation planner screens the candidates carefully and is willing to spend some time explaining the purpose and importance of the study. It is also vital that interviewers be trained in the actual administration of the survey to insure that all sample households are dealt with uniformly. The survey itself can be adapted to facilitate this. An introductory paragraph should be designed and printed at the top of each survey for interviewers to read or memorize. It could be worded as follows:

Hello, my name is _____ and I am working for the city/town of _____. We are conducting a study to find out how city or town residents feel about recreation. This will take about 10 or 15 minutes. Would you help us by answering a few questions?

- ___ Yes - Go to question 1.
- ___ No - May I come back at a better time?
- ___ No - Thank-you, good-by.

By using a standard format, uniformity can be maintained and confusion can be avoided. In terms of the survey questions themselves, spaces should be left for interviewers to write in responses, and a uniform method of recording should be established i.e. check the boxes, circle the answers, etc. In so doing, the collation of final results can be made far easier. Using this method of distribution increases to some extent the control the recreation planner has over the actual survey administration, however care must be taken to insure that all interviewers understand the importance of uniform administration. This method of distribution has been used successfully by the federal Bureau of Outdoor Recreation (BOR) in conducting similar surveys on a national level. The BOR employs a method of checking the accuracy of results which a community recreation planner may or may not feel is necessary depending on the reliability of his interviewers, the size of the sample and the time and energy constraints of the study. The BOR established a system involving follow-up phone calls where every seventh sample household was contacted by telephone to verify that an interview did take place, and the questions asked were contained within the survey. They went so far as to reask some of the survey questions over the phone in order to cross-reference those responses with responses made during the interview. It is highly unlikely that a community recreation planner would have the need or the desire to carry a check this far, however in very long surveys or surveys where the sample consists of several hundred or several thousand households, this method of monitoring accuracy may be necessary.

Telephone interviews represent another means of survey administration. This method requires far less staff time than the personal interview technique, and of all the methods it is probably the least expensive. The sources for staff are roughly the same as for the personal interview methods; however, because there is no need for mobility of interviewers, it should be much easier to find people willing to assist in conducting such a survey on a volunteer basis. Community offices could be used as a base or interviewers could be allowed to make calls from their own homes. By employing this method the data collection time can be drastically reduced and the recreation planner can maintain some control over the survey administration. Again, it is important to train interviewers to insure uniformity, and the use of a standardized introduction should be employed. It cannot be stressed enough that interviewers chosen for this task be responsible and competent people. The accuracy of the entire study depends on their administration of the survey.

D. SAMPLE SURVEY

An example of how a survey can be worded and organized is shown on the following page. This survey could be used for any of the previously described administration techniques given minor adaptations of the answering instructions. It is, however, meant strictly as a sample and should not be used indiscriminately. Surveys should be adapted to fit specific community needs. Although this particular survey might work well for some communities, it could fail miserably for others.

City/Town of _____

RECREATION NEEDS SURVEY

Respondent _____

Date of Interview _____

Address _____

Phone _____

Interviewer _____

Hello, my name is _____ and I am working for the city/
town of _____. We are conducting a study to find out how city or
town residents feel about recreation. This will take about 10 or 15
minutes. Would you help us by answering a few questions?

____ Yes - Go to question 1.

____ No - May I call (or come back) at a better time?

____ Yes - _____ Day _____ Time

____ No - Thank-you, good-bye.

1. How important is recreation to you and the members of your household?

____ 1. Very Important

____ 2. Somewhat Important

____ 3. Not Very Important

____ 4. Unsure

2. What two warm weather activities do you or members of your household
participate in most often? (List two activities)

A. _____

B. _____

3. Where do you usually participate in (A,B)? (Answer for each activity
by placing the corresponding letter on line which applies.)

____ 1. Community Facilities

____ 2. State Facilities

____ 3. Federal Facilities

____ 4. Commercial Facilities

____ 5. Private Facilities

____ 6. Non-profit Facilities

4. Are there any warm weather activities which you or members of your
household would like to participate in more often, but for some
reason do not?

____ Yes

____ No

4a. If yes, what are those activities?

A. _____

B. _____

- 4b. Why don't you or members of your household participate in (A,B) more often? (Answer for each activity by placing the corresponding letter on all the lines which apply)

- ☐ 1. No Time
- ☐ 2. Too Expensive
- ☐ 3. Too Crowded
- ☐ 4. No Facility Nearby
- ☐ 5. No Transportation
- ☐ 6. Need Instruction
- ☐ 7. No Equipment
- ☐ 8. No Motivation
- ☐ 9. Other (specify) _____

5. How often do you or members of your household use (city or town) recreation facilities and programs during the warm weather months? (check one)

- ☐ 1. More than once a week
- ☐ 2. About once a week
- ☐ 3. About twice a month
- ☐ 4. About once a month
- ☐ 5. Less than once a month
- ☐ 6. Never

- 5a. During the warm weather months what are the reasons you or members of your household do not use (city or town) recreation programs and facilities more often? (check all that apply)

- ☐ 1. No Time
- ☐ 2. Do not like facilities or program available
- ☐ 3. Prefer other facilities (private, etc.)
- ☐ 4. Activities offered at inconvenient times
- ☐ 5. Facilities too crowded
- ☐ 6. Am not interested in doing so
- ☐ 7. No instruction offered
- ☐ 8. No transportation to facilities
- ☐ 9. No facilities nearby
- ☐ 10. Poor publicity
- ☐ 11. Other (specify) _____

6. What two cold weather activities do you or members of your household participate in most often? (List two activities)

A. _____

B. _____

7. Where do you usually participate in (A,B)? (Answer for each activity by placing the corresponding letter on the line which applies)

- ☐ 1. Community Facilities
- ☐ 2. State Facilities
- ☐ 3. Federal Facilities
- ☐ 4. Commercial Facilities
- ☐ 5. Private Facilities
- ☐ 6. Non-profit Facilities

8. Are there any cold weather activities which you or members of your household would like to participate in more often, but for some reason do not?

☐ Yes
☐ No

- 8a. If yes, what are those activities? (List two activities)

A. _____

B. _____

- 8b. Why don't you or members of your household participate in (A,B) more often? (Answer for each activity by placing the corresponding letter on the lines which apply.)

- ☐ 1. No Time
- ☐ 2. Too Expensive
- ☐ 3. Facilities too Crowded
- ☐ 4. No Facility Nearby
- ☐ 5. No Transportation
- ☐ 6. Need Instruction
- ☐ 7. No Equipment
- ☐ 8. No Motivation
- ☐ 9. Other (specify) _____

9. How often do you or members of your household use (city or town) recreation programs and facilities during the cold weather months? (Check one)

- ☐ 1. More than once a week
- ☐ 2. About once a week
- ☐ 3. About twice a month
- ☐ 4. About once a month
- ☐ 5. Less than once a month
- ☐ 6. Never

- 9a. During the cold weather months, what are the reasons you or members of your household do not use (city or town) recreation facilities and programs more often? (Check all that apply)

- ☐ 1. No time
- ☐ 2. Do not like facilities or programs available
- ☐ 3. Prefer other facilities (private, ect.)
- ☐ 4. Activities offered at inconvenient time
- ☐ 5. Facilities too crowded
- ☐ 6. Am not interested in doing so
- ☐ 7. No instruction offered
- ☐ 8. No transportation to facilities
- ☐ 9. No facilities nearby
- ☐ 10. Poor publicity
- ☐ 11. Other (specify) _____

10. In general, how satisfied is your household with (city or town) recreation services? (Check one)

- ☐ 1. Very satisfied
- ☐ 2. Somewhat satisfied
- ☐ 3. No opinion
- ☐ 4. Dissatisfied
- ☐ 5. Very dissatisfied

11. How aware are you of the recreation facilities and programs which your community offers? (Check one)

- ☐ 1. Very aware
- ☐ 2. Somewhat aware
- ☐ 3. Not very aware

12. Do you have any suggestions as to how city or town could improve its recreation services? (Explain below)

13. If a sum of money was specifically set aside for recreation improvement, given the following alternatives, how would you most like to see the money spent? (Check two)

- ☐ 1. Bike Paths
- ☐ 2. Swimming Pool
- ☐ 3. Hiking or Walking Trails
- ☐ 4. Playing Fields
- ☐ 5. Tennis Courts
- ☐ 6. Basketball Courts
- ☐ 7. Ice Skating Rink
- ☐ 8. Golf Course
- ☐ 9. Purchase of Conservation Land

14. It is important for us to know how households with different sex and age characteristic feel about recreation. Would you help us by giving us the sex and age group for each member of your household? (Circle those that apply)

1. Respondent	M F	Elementary	Teen	Adult	Elderly
2.	M F	Elementary	Teen	Adult	Elderly
3.	M F	Elementary	Teen	Adult	Elderly
4.	M F	Elementary	Teen	Adult	Elderly
5.	M F	Elementary	Teen	Adult	Elderly

E. ANALYSIS OF DATA

After the surveys have been administered and returned, the task of collating the data begins. There are two ways to go about doing this. The first is through manual tabulation and cross-referencing and the second is through the use of a computer. Communities which have access to a computer, particularly those which have a large number of surveys to tabulate, would be well advised to take advantage of that resource. Communities which do not have direct access to a computer may find that university professors offering courses in recreation planning or computer science would be willing to use raw survey data as part of a course related project. Regardless of the method used for the collation of data, there are a number of percentages and cross-tabulations which must be generated in order to produce an accurate assessment of community recreation demand. It is important to remember at this stage of the analysis that recreation demand when compared with existing recreation supply will ultimately yield information as to a given community's overall recreation needs. To facilitate the drawing of this comparison at a later time, the organization of recreation demand data should be adapted to fit closely with the organization of existing supply data. For this reason, the collation of raw survey data, and the generation of various percentages and cross-tabulations is best organized on an activity-by-activity basis. In this way, information as to the community's supply of tennis courts, for example, can easily be compared with the community's present participation in or desire for participation in tennis. Likewise, indications as to the factors inhibiting participation in tennis such as, facilities too crowded, or no facilities nearby, can be directly related to what is known about the community's resources for tennis.

To begin collating raw survey data in this way, the recreation planner must read through all the surveys, making a list of all those activities in which respondents participated or desired to participate. Then, for each activity listed, the following percentages should be generated. Tennis has been used as an example.

Tennis

1. What percentage of the total number of households polled listed tennis as an activity in which they participate most often?
26% ("Actual" participation rate)
2. Of this 26% what percentage were households with children, adults only, and elderly only? w/children 48% adults only 48% elderly only 4%
3. What percentage of the total number of households polled listed tennis as an activity in which they desired to participate more often? 15% ("Desired" participation rate)
4. Of this 15% what percentage were households with children, adults only, and elderly only?
5. What barriers inhibit participation in tennis?
40% No time
15% No facilities nearby

- 15% Facilities too crowded
 - 25% Need instruction
 - 5% Too expensive
6. Where do those participating in tennis, play?
- 60% Community Facilities
 - 0% State Facilities
 - 0% Federal Facilities
 - 30% Private Facilities
 - 5% Non-profit Facilities
7. How often do those participating in tennis during the warm weather months use community provided recreation resources during the warm weather months? (Ask the same question for those participating in tennis during the cold weather months.)
- 10% More than once a week
 - 20% About once a week
 - 30% About twice a month
 - 20% About once a month
 - 19% Less than once a month
 - 1% Never
8. What percentage of the total number of households polled listed tennis as one of the activities for which the community should improve its facilities?
- 20%
9. What percentage of the total number of households polled listed tennis courts as the facility for which they would most like to see recreation money spent?
- 15%
10. What percentage of those who participate most often in tennis are generally satisfied with the recreation services of the community?
- 10% Very satisfied
 - 15% Somewhat satisfied
 - 30% No opinion
 - 35% Dissatisfied
 - 10% Very dissatisfied

By completing a similar tabulation for each and every activity (both cold weather and warm weather activities), the recreation planner can make accurate judgments as to his community's demand and ultimate need for recreation. Using the example above, a typical analysis might be written as follows:

Given that there will most likely be at least ten to fifteen warm weather activities listed, a figure of 26% for the total number of households showing participation in tennis is a high percentage. As we see from the age break-down, participation is undertaken primarily by those households with children and adults only. Looking at desired participation, 15% will most likely be a high percentage when compared with desire for participation in other activities. The age break-down for this factor shows that households with elderly members only do not desire to play tennis at all. From this, we can assume that the low actual participation

rates shown for this age group are not a result of inadequate tennis facilities for the elderly. We see instead that households with children have the highest desire for tennis of all the age groups, followed by a significant percentage made up of those households with adults only. Looking at the barriers inhibiting tennis participation these break-downs begin to make more sense. Forty percent of those desiring to participate in tennis are inhibited from doing so due to a lack of time. This seems reasonable given that less leisure time is apt to be available in households which have children than in those that do not. We also see the lack of instruction is another major barrier, as are crowded facilities, and a lack of facilities nearby. This information can be of direct value to the recreation planner in making specific decisions about the improvement of community tennis resources.

To get a better idea of how these barriers affect participation, the recreation planner may want to generate an age break-down as was done with the actual and desired participation data. In looking at where people play tennis most often we see that community facilities are utilized by 60% of those who play tennis. For this reason, the recreation planner should give considerable attention to assuring that community tennis facilities are adequate, obviously much more so than if 60% of the participation occurred at private clubs. Statistics concerning the frequency with which tennis playing households use community recreation facilities we find 60% use them twice a month or more. Remembering that all of these percentages can be generalized to the total number of households within the community, a rough estimate of the number of uses per month can be generated. Using this figure, the recreation planner should be able to see clearly whether the number of existing tennis courts within the community is adequate given the current demand. Percentages indicating public preference for improvement of existing recreation resources supply add more information to the data pool. The same holds true for other more general questions such as how important is recreation and generally how satisfied are you with existing community recreation resources. Obviously, the more data one has the more accurate one's final assessments can be.

In general, the analysis of the above sample has shown that there is both a high participation in, and a high desire for participation in tennis. As such, tennis can be considered a high demand activity. For this reason the recreation planner should place a high priority on the adequate provision of tennis resources, and considerable attention should be given the comparison drawn between existing tennis resources and current tennis demand. Once a similar analysis has been completed for all the activities mentioned in the raw survey data, the recreation planner should have an excellent idea of how and what his community does and wants for recreation. By comparing this knowledge of recreation demand with information concerning existing recreation supply, the community's need for recreation can be determined. This accomplished, the recreation planner can begin to apply the knowledge gained through these analyses in making the policy, allocation, and site-specific decisions that will responsibly meet the community's demand and need for open space and recreation.

RECREATION NEEDS: ANALYSES

By drawing careful comparisons between existing recreation supply and the community's current recreation demand the recreation planner will be able to determine the community's need for recreation. To facilitate the drawing of this comparison and the application of the resulting conclusions, it is best to organize this analysis on the basis of individual recreation activities. Because the supply of recreation resources for each activity can be represented in numerical form, drawing comparisons between these numbers and unquantifiable measures of recreation demand, may present the recreation planner with some problems. It is vital for the recreation planner to remember at this stage of the analysis that there are no cookbook recipes for assessing recreation needs. A considerable degree of latitude exists in the determination of community need for recreation and the recreation planner must be prepared to look carefully at all data and exercise personal judgment in making final assessments.

As discussed earlier, each method for assessing recreation demand has positive and negative attributes which affect accuracy. For this reason, it must again be stressed that to rely solely on any one of these demand methodologies for the purpose of analyzing community need for recreation can result in significant inaccuracies. The recreation planner should view each method as source for additional information. Obviously, the more information one has in the data pool the more one can rely on the accuracy of the final analysis.

Of all the ways to assess recreation demand described in this manual, the survey represents the strongest method. Using the survey as a foundation for a comparison with existing supply, additional data compiled through the use of other demand methodologies can be used to support the survey findings. This can be done with little additional effort and the benefits derived are well worth it. An example of a typical needs analysis is shown below. Again, tennis has been used for illustrative purposes.

Tennis

Given the results of the demand analysis used as an example in the previous section of this manual, we find that tennis enjoys a rate of "actual" participation and a high rate of "desire" for participation. The barriers inhibiting participation in tennis include crowded facilities, lack of facilities nearby, and lack of instruction. According to the survey, public use of community provided tennis courts is intensive. Recreation standards indicate that one court per 1,000 population should be sufficient to meet community need for tennis facilities. By looking at the Statewide Comprehensive Outdoor Recreation Plan (SCORP) statistics show that participation rates for tennis over the course of the next 20 years are expected to increase significantly. (If information about community demand for tennis has been generated through political processes, a comment should be made here.) All this information together, should give the recreation planner an excellent basis for a comparison with data concerning the existing supply of tennis facilities. Assuming that the total population for the community being studied is 30,000 and that 15 tennis courts, most in poor condition, are available in the community for public use, the "need" for community tennis facilities should be characterized by the recreation planner as extreme. As such, the recreation planner should make recommendations in his plan that will address this need for tennis facilities.

This type of analysis should be completed for each and every activity for which the public shows a demand. From these individual analyses the recreation planner can prioritize the community's needs for recreation and can begin to apply his findings in making responsive recreation policy, allocation and site-specific decisions.

RECREATION NEEDS ANALYSES: APPLICATION

Comprehensive open space and recreation plans are compiled on the basis of numerous decisions ranging from the establishment of recreation policy to the treatment of site-specific recreation facilities. Recreation needs analyses constitute an essential component of any open space plan as they offer a means for supporting and giving validity to nearly all the decisions which the recreation planner must make in the process of drafting open space and recreation plans.

In terms of recreation policy, needs analyses can form the basis for the establishment of the goals and objectives for future recreation plans. They can be used to support allocation decisions such as the categorization of activity-specific resources, programs and facilities which the community should provide. They may indicate specific strategies for the implementation of various allocation decisions such as who most logically should be responsible for the provision of various resources i.e. state, federal, regional, local or private organizations; and how various resources can be improved, i.e. dedication or acquisition of land or water resources, or the construction or improved maintenance of recreation facilities. On the basis of community recreation need, the availability of existing opportunities and the urgency of the need to preserve existing natural resources, the timing for the implementation of various strategies can be determined. The geographical distribution of community provided recreation facilities can be supported through the use of area-specific needs analyses and information as to the existence of development opportunities. Lastly, individual site-specific decisions can be strongly supported by recreation needs analyses, in conjunction with information as to the physical characteristics of each site and the proximity and type of existing recreation resources.

Recreation needs analyses should play an important role in all of these decision-making processes. Open space and recreation plans cannot be considered viable without the inclusion of accurate assessments of community demand and need for recreation.

APPENDIX

The MAPC library has several resources which our member community's may find of value in compiling Recreation Demand Assessments and Open Space and Recreation Plans. They are each described below.

MAPC Publications

1. Guidelines Recreation Conservation

Guidelines to assist municipalities in preparing conservation and recreation plans which will satisfy the requirements of the Massachusetts Division of Conservation Services in the Executive Office of Environmental Affairs.

2. The 1976 Regional Open Space Plan

The open space and recreation program for metropolitan Boston.

3. Assessing Recreation Demand

A manual outlining several methodologies which may be used to make accurate assessments of community recreation demand.

Related Publications

1. Massachusetts Outdoors

Draft of the 1978 Statewide Comprehensive Outdoor Recreation Plan, compiled by the Massachusetts Department of Environmental Management.

2. Massachusetts Outdoor Recreation Plan

1973 plan for outdoor recreation in the State of Massachusetts.

3. Assessing Demand for Outdoor Recreation

Compiled by the U.S. Department of the Interior, Bureau of Outdoor Recreation. An intellectual assessment of the problems associated with developing strategies for estimating recreation demand.

